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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

March 30, 2004

In re Application of:	Conklin *et al.*
Serial No.	09/441,318
Filed:	11/16/99
For:	TRANSGENIC PLANT WITH INCREASED EXPRESSION OF GDP-MANNOSE PYROPHOSPHORYLASE
Examiner:	Kubelik, A.
Art Unit:	1638
Confirmation No.:	4166
Attorney Docket No.:	BTI-41

HONORABLE COMMISSIONER OF PATENTS
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR § 1.132

In response to the Office Action dated December 31, 2003, I, Dr. Patricia L. Conklin, Ph.D., do hereby declare and say as follows:

BACKGROUND INFORMATION

1. I am a former Research Scientist at the Boyce Thompson Institute for Plant Research. My ***curriculum vitae***, which describes my education, employment, research publications, patents and other expert qualifications, is attached hereto as Exhibit 1.

2. I have extensive experience in the fields of molecular biology and genetic engineering of plants. I have worked in the field of molecular biology since 1992. Through my years of research and professional activities in the fields of molecular biology and genetic engineering, I am familiar with the skills of those working in the field from 1992 to the present. In carrying out my current professional activities, I keep up to date on the technical literature and maintain contact with other experts in the field.

3. I am a co-inventor of the invention of claims 1-26 in the present patent application, Ser. No. 09/441,318.

4. I have read and understood the above referenced patent application, including the specification, claims and the relevant prior art. Based on my analysis of the contents of the

aforementioned documents, I have formulated certain opinions regarding the issues of the definiteness, written description and enablement of claims 1-22 and 23-26.

5. The standard I used for definiteness is whether the claim apprises one of ordinary skill in the art of its scope.

6. The standard I used for written description is whether the disclosure as originally filed reasonably conveys to one of ordinary skill in the art that the inventor had possession, at the time the application was filed, of the claimed subject matter.

7. The standard I used for enablement is whether one of ordinary skill in the art could make or use the claimed invention, at the time the application was filed, from the disclosure in the application coupled with information known in the art, without undue experimentation.

8. A person of ordinary skill in the art would have a Ph.D. in molecular biology or an equivalent degree and at least two years of laboratory research experience in plant biology, or at least a B.S. degree and a minimum of four years of laboratory research experience in plant biology.

9. Molecular biology, and particularly the genetic engineering of plants, are extremely complex subjects and therefore the art typically engages in complex, time-consuming experimentation.

10. The level of skill in the art is very high, as attested to by the level of ordinary skill noted above, and the state of the art is relatively advanced, in that complete manuals are available that describe the methods of molecular biology and transformation of plants in great detail.

ENABLEMENT OF CLAIMS 1-22 and 24-26

11. The specification provides ample guidance for the full-length gene encoding GMPase (present application page 10, line 7 through page 12, line 12).

12. . The specification provides ample guidance for wild-type plants transformed with the GMPase gene, and for methods of making stress resistant plants by transformation with a nucleic acid encoding the GMPase gene. Indeed, the specification provides real examples of plants that were transformed with the full-length gene encoding GMPase (present application, page 14 lines 1-6), and which exhibited increased Vitamin C levels (present application, page 16 Table 1).

13. When doing the experiments leading to the identification of VTC1, mapping data indicated vtc1 maps below marker m429 (using marker CAPS 178) (present application, page 10, lines 10-25).

14. While working in a collaborator's laboratory, I found that less ^{14}C-mannose was incorporated into AsA in vtc1 mutants than wildtype and a collaborator found that vtc1 mutants had less mannose in the cell wall. As GDP-mannose is used for cell wall biosynthesis, we hypothesized that vtc1 may be defective in the conversion of mannose-1-P to GDP-mannose via GDP-mannose pyrophosphorylase (present application, page 9, line 17 through page 10, line 6).

15. In the Arabidopsis EST database, we found an EST (EST ID #9908, Genbank #T46445) annotated as a "putative glucose-1-P thymidylyltransferase isolog" (also see present application, page 11, lines 5-6). Since the identity of the EST is disclosed in the application, no experimentation would be required for someone skilled in the art to identify it.

16. We aligned segments of this EST with the yeast protein (vig9) and found "good similarity" (59% amino acid identity with the mannose-1-phosphate guanyltransferase from *S. cerevisiae*) (present application, page 11, lines 11-12). This data is also in the application, and therefore, would not require any experimentation by someone skilled in the art.

17. We then took the Arabidopsis EST and used it to search the Arabidopsis Genebank, which was not complete at that time, hoping to hit a BAC sequenced by TIGR that fell below m429.

18. We found BAC T5I7 (AC00300), which aligned almost perfectly (present application, page 9, lines 25-29). This BAC is listed in the application.

19. Attached is a printout of this Blast query. It is dated 10-29-97. Clearly the sequence AC00300 (BAC T5I7) was annotated as "one ordered piece" as of that date. The BAC sequence covering the genomic version of the VTC1 gene was there as early as 1997.

20. This BAC T517 is clearly identified in the application, and would allow someone skilled in the art to practice the invention without undue experimentation. The sequence of this BAC is not required in order for someone skilled in the art to practice the invention.

21. In addition, based on the disclosure of the GenBank Accession number for the EST, one of ordinary skill in the art would be able to obtain the full-length sequence of the GMPase gene

without undue experimentation. Indeed, the cDNA encoding the *Arabidopsis* GDP-mannose pyrophosphorylase (EST ID #9908, GenBank #T46645, www.ncbi.nlm.nih.gov/irx/cgi-bin/birx_doc?dbest_cu+6850) can easily be obtained from the Arabidopsis Biological Resource Center (http://www.biosci.ohio-state.edu/~plantbio/Facilities/abrc/abrchome.htm; Columbus, OH), as described in the specification.

22. Furthermore, by following the teachings in the specification, we have subsequently narrowed the locus of another gene with probable involvement in the Vitamin C biosynthesis pathway, VTC4, to a small region of the Arabidopsis genome. See Ser. No. 09/909,600. The methods used to locate this second gene were virtually identical to those in the present specification. Thus, clearly, the present specification provides enablement for the claimed invention.

23. Any alleged unpredictability associated with expression of genes in plants has been overcome, in that the gene encoding GMPase was, in fact, transformed into plants, thereby generating genetically engineered plants having increased levels of Vitamin C, relative to the progenitor plants.

24. Thus, someone skilled in the art could simply follow the steps outlined in our application to obtain a clone of the full-length gene. This would not require "undue" experimentation.

25. Any alleged unpredictability associated with expression of genes in plants has been overcome, in that the gene encoding GMPase was, in fact, transformed into plants, thereby generating genetically engineered plants having increased levels of Vitamin C, relative to the progenitor plants.

26. Based on the fact that the prior art demonstrates that plants can be transformed with a gene encoding an enzyme in the Vitamin C pathway and thereby produce transgenic plants having increased Vitamin C and stress resistance, and further based on the extensive teachings in the present patent application, one of ordinary skill in the art would be able to practice the claimed invention without undue experimentation, and would reasonably expect that transformation of GMPase into a wild-type plant would increase the levels of Vitamin C and stress resistance in the resulting transgenic plants.

WRITTEN DESCRIPTION OF CLAIMS 1-22 and 24-26

27. Many of the genes encoding GMPase (including that of *Arabidopsis* and other species), as well as the other enzymes in the Vitamin C pathway, are known in the art.

28. Figure 1 and the specification at page 4, lines 12-16, disclose the enzymes we deem to be in the Vitamin C pathway.

29. Someone skilled in the art would conclude that the Applicant had possession of the invention from the pathway in Figure 1, which lists the enzymes claimed in the present application; sequences of those enzymes would not be required to clone a recombinant nucleic acid that encodes an enzyme in a plant Vitamin C biosynthesis pathway, or express the enzyme in a genetically engineered plant including that enzyme.

30. Furthermore, based on the examples and experimental results disclosed in the application, one of ordinary skill in the art would know that the Applicant was in possession of the GMP-mannose pyrophosphorylase gene and recombinant plants transformed with this gene that express increased levels of Vitamin C.

CLAIMS 1-8, 10, 16-22 and 24-26 ARE NOT INDEFINITE

31. With regard to claim 1 and its dependent claims, the enzymes deemed to be encompassed by the claims are described at Figure 1. The source of the nucleic acids that encode these enzymes is not relevant, particularly since the claims do not have any limitations regarding the source of the nucleic acid. Rather, the claims are limited merely to the specific proteins recited having the described enzymatic activity. Thus, one of ordinary skill in the art would understand what is claimed, when the claims are read in light of the specification.

32. With regard to claim 16, a person of ordinary skill in the art would understand the meaning of the term "increasing" and apply its plain, ordinary meaning. There is no need to define this term, as it is a term that is known to virtually everyone and its meaning is quite clear. More particularly, one of ordinary skill in the art would understand that the claimed transgenic plants have increased Vitamin C relative to plants that are not so transformed. The specification specifically teaches how to measure Vitamin C with the AsA assay (present application, page 8, line 27 through page 9, line 16).

CONCLUSION

33. Based on the above analysis, I conclude that claims 1-22 and 24-26 in the present patent application are definite and supported by both a written description and an enabling disclosure.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: April 2, 2004 By: Patricia L. Conklin

Dr. Patricia L. Conklin, Ph.D.

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CURRICULUM VITAE

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Education:

Cornell University, Ithaca, NY — 1992
Doctoral Program, Section of Genetics and Development
Ph.D. in Genetics

University of North Carolina at Chapel Hill — 1985-86
Doctoral Program, Curriculum in Genetics

Allegheny College, Meadville, PA — 1985
Bachelor of Science, *summa cum laude*, Biology

Awards, Grants and Fellowships:

SUNY Cortland "Excellence in Research and Scholarship" Award Recipient, 8 May 2003.
USDA-NRI Plant Responses to the Environment Program grant entitled "Molecular Mechanism of Plant Vitamin C Biosynthesis.", Nov. 02 – October 04, $117,374.
Subcontract Award under USDA-NRI Plant Responses to the Environment Program grant awarded to Dr. J. Sparks entitled "The controls over the assimilation and emission of atmospheric reactive nitrogen by leaves.", Cornell University, July 02 – June 04, $10, 415.
Travel Award from the Cortland College Foundation, May 03.
American Cancer Society Postdoctoral Fellow, Sept. 92 – Aug. 95.
Walter Schon Lenk Fellow, (Cornell University Graduate School Award) 1991-92 academic year.
Plant Science Center Fellow, Cornell University, June 89 – Sept 91 excluding spring 1990.
McKnight Training Grant, Cornell University, June 86 – Jan 89 excluding spring 1988.
Research Triangle Universities Plant Molecular Biology Fellow, University of North Carolina at Chapel Hill, 1985-86 academic year.
University of North Carolina at Chapel Hill Biotechnology Program Award, 1985.
Valedictorian-Allegheny College Class of 1985.
Phi Beta Kappa
Sandra Doane Turke Scholar, Allegheny College.
Robert E. Bugbee Award for Research in Biology, Allegheny College.
Biology Faculty Award for Scholarship in Biology, Allegheny College.

Academic Experience:

Assistant Professor — 2001-present
Department of Biological Sciences
State University of New York College at Cortland

Visiting Assistant Professor 2000-01
Department of Biological Sciences
State University of New York College at Cortland

Adjunct Research Associate 2000-01
Boyce Thompson Institute for Plant Research at Cornell University
Supervision of research on the molecular genetics of plant ascorbic acid biosynthesis and Arabidopsis hypersensitivity to ozone

Sr. Research Associate 1999-00
Boyce Thompson Institute for Plant Research at Cornell University
The molecular genetics of plant ascorbic acid biosynthesis - positional cloning of *VTC3* and *VTC4*

Research Associate 1995-99
Boyce Thompson Institute for Plant Research at Cornell University
Isolation and characterization of ascorbic acid-deficient *Arabidopsis thaliana* mutants; cloning of the *VTC1* gene

Postdoctoral Fellow with Dr. Robert L. Last 1992-95
Boyce Thompson Institute for Plant Research at Cornell University
Molecular characterization of the response of Arabidopsis to oxidative stress; screening, isolation, and characterization of ozone-sensitive and paraquat-sensitive mutants

Graduate Student with Dr. Maureen R. Hanson 1986-92
Cornell University, Section of Genetics and Development
Discovery of the *trans*-splicing and RNA editing of the *Petunia* mitochondrial gene *nad1*, sequence analysis of the recombination repeats present in the *Petunia* mitochondrial genome, and cloning and RNA edit analysis of a ribosomal protein gene (*rps19*) encoded within this recombination repeat.

Undergraduate Senior Comprehensive Project with Dr. Christine Nebiolo 1984-85
Allegheny College

Teaching Experience:

Assistant Professor, SUNY-Cortland, Bio312 (Genetics) Spring 2003, Fall 2002, Spring 2002, Fall 2001; Bio 306 (Human Genetics) Fall 2002, Spring 2002; Bio110 (Principle of Biology I) Fall 2001.

Guest Lecturer for Sci320 (Science, Technology and Culture - Dr. Brian Rivest). The impact of recombinant DNA technology on the field of human health. Spring 2003.

Guest Lecturer for Bio 310 (Dr. Steven Broyles) Plant Stress. How plants cope with drought and freezing temperatures. Summer 2002.

Visiting Assistant Professor at SUNY-Cortland, Bio 312 (Genetics), Bio 306 (Human Genetics) Fall semester 2000; Bio 312 (Genetics) Spring 2001.

Guest Lecturer for Sci300 (Dr. Kathy Russell) Genomics and Human Disease, Spring 2001, Fall 2001.

Laboratory Leader for Cornell Institute for Biology Teachers (CIBT), Ascorbic acid. Cornell University, 25 July 2000.

Workshop Leader at "Biology as an information science – a workshop for engineers." held for the Dept. of Engineering Faculty, Cornell University, 24 May 2000.

Guest Lecturer, Cornell PB606 (Advanced Plant Breeding). February 17, 2000, February 16, 1998.

Instructor, New Visions - Explorations in Biological Sciences Student Workshop at BTI, The genetics of vitamin C-deficient Arabidopsis mutants. 27 Feb.1998.

Instructor, Cornell Explorations Freshman Workshop, Vitamin C - good for you and good for plants. 5 December 1997.

Instructor, Return to Campus Workshop for high school biology students, Cornell Institute for Biology Teachers, Plant antioxidants. Fall 1997.

Workshop Leader, Stratospheric vs. Tropospheric Ozone: Why plants like one but not the other. Marple Newtown Freshman Initiative, Penn State University Great Valley Campus, Philadelphia, PA, sponsored by ARCO and the Marple Newtown School District. March 1997.

Instructor, Cornell University Adult University Course, The genie unleashed: DNA in the modern world. 7-13 July 1996.

Instructor, Cornell Explorations Freshman Workshop, Plants and the environment: Arabidopsis, ozone and vitamin C. 7 Nov 1995.

Lecturer and Laboratory Instructor, Cornell University Plant Science Center Workshop - Construction of cDNA libraries and RNA analysis. 2-13 August 1993.

Teaching Assistant, Cornell University; Introduction to genetics laboratory, Spring semester 1990; Plant molecular biology laboratory, Spring semester 1988.

Workshop Leader - Plant physiology and molecular biology, "Expanding Your Horizons" program for middle school girls. Fall 1989,1990,1993.

Teaching Assistant, Allegheny College, Cell biology laboratory, Spring 1984, 1985; Ecology laboratory, Fall 1983.

Service Activities:

A & S College Curriculum Committee, SUNY Cortland	2001-04
Greening of the Campus Task Force, SUNY Cortland	2003-04
Departmental Personnel Committee, SUNY Cortland	2003-04
Honorary Degree Committee, SUNY Cortland	2003-04
Departmental Biology Awards Selection Committee member	2002-04
Senior Judge for Greater Syracuse Scholastic Science Fair	2002-04
Cortland Biology Newsletter Group	2001-04
President's Task Force Focus Group, SUNY Cortland	2002
Cortland Y.W.C.A Girl's Day Out Participant	2001
Departmental Curriculum Committee	2001-03
Biomedical Sciences Major Proposal Group, SUNY Cortland	2002-03
Biology Club Advisor, SUNY Cortland	2000
Boyce Thompson Library Committee	1996-00
Boyce Thompson Internal Seminar Series Committee	1998-99
Boyce Thompson Institute Management Advisory Committee	1996-98
Boyce Thompson Educational Outreach Committee	1997-99
Student Representative - Cornell University, Section of Genetics and Development Graduate Student Admissions Committee	1990

Professional Activities:

Ad hoc reviewer for USDA-NRI Plant Responses to the Environment, National Science Foundation Integrative Plant Biology Program, National Science Foundation Integrative Plant Genome Research Program, *Plant Physiology, Plant Cell, The Plant Journal, Journal of Experimental Botany, Physiologia Plantarum, Plant Cell and Environment, Journal of Plant Physiology, Journal of Phytopathology*

Member: American Association of Plant Physiology

USDA-NRI Plant Responses to the Environment Review Panel Member, Washington, D.C. 2-5 Feb. 2003.

Title III WebCT Workshop participant, SUNY Cortland, 19 May –20 May 2003.

Student Computer Access Program (SCAP) Award from the SCAP Committee for five G3 MacIntosh Computers and one inkjet printer for the molecular biology teaching laboratory, Fall 2002.

Selected Public Presentations:

Poster Presentation, **P. L. Conklin** and C. Barth "The ascorbate-deficient Arabidopsis mutant *vtc1* has altered responses to both high light and pathogens." presented by P.L. Conklin at the Fourteenth International Conference on Arabidiopsis, Madison, WI. June 2003.

Poster Presentation C. Barth, W. Moeder, D. Klessig, and **P.L. Conklin**, "The ascorbate-deficient Arabidopsis mutant *vtc1* has altered responses to both high light and pathogens." presented by C Barth at the Annual Meeting of the American Society of Plant Biologists, Honolulu, HI. July 2003.

Poster Presentation, C. Barth, G.H. Krause, **P,L, Conklin** "What is wrong with *soz2*? A genetic and physiological characterization of the ozone-sensitive *Arabidopsis thaliana* mutant *soz2"* presented by C. Barth at the Thirteenth International Conference on Arabidopsis, Seville, Spain. July 2002.

Poster Presentation, C. Barth and **P.L. Conklin**. Annual Meeting of the American Society of Plant Biologists, Providence, RI. July 2001

Poster Presentation, J.A. Brenchley, G.L. Wheeler, S. Gatzek, N. Smirnoff, **P.L. Conklin**. Annual Meeting of the American Society of Plant Biologists, Providence, RI. July 2001.

Invited Speaker, The Ascorbate Biosynthetic Pathway. XVI International Botanical Congress, St. Louis, MO. August 1999.

Invited Speaker, Oxidative Stress Adaptation: Mutants and Mechanisms in Arabidopsis. Plant Molecular Biology Gordon Conference, Plant Biological Regulator Mechanisms, Henniker, NH. July 1998.

Poster Presentation, S.A. Saracco, **P.L. Conklin**, S.R. Norris, G.L. Wheeler, N. Smirnoff, R.L. Last. The Biochemical Genetics of Ascorbate Biosynthesis in Arabidopsis. Ninth International Conference on Arabidopsis Research, Madison, WI. June 1998.

Speaker, Ascorbic Acid Biosynthesis in Plants: A Molecular Genetic Approach. Cereon Genomics Discovery Group, Cambridge, MA. June 1998.

Invited Speaker, Ozone-sensitive Arabidopsis Mutants. Eighth International Conference on Arabidopsis Research, Madison, WI. June 1997.

Invited Speaker, Antioxidant status in Ozone-Sensitive Arabidopsis Mutants. The Plant Workshop: Leaves, La Colle sur Loup, France. June 1997.

Invited Speaker, Ascorbate-Deficient Arabidopsis Mutants. VIII Biennial Meeting International Society for Free Radical Research, Barcelona, Spain. October 1996.

Invited Speaker, Cornell University Plant Biology Seminar Series, Ithaca, NY. June 1996.

Selected Oral Presentation, 1995 Annual Meeting of the American Society of Plant Physiologists, Charlotte, NC. 8/95.

In-House Section of Genetics and Development Seminar Series, Cornell University, Ithaca, NY. 9/88, 3/90, 3/91, 5/92, 3/94, 3/95, 3/96, 3/97.

Invited Speaker, 26th Air Pollution Workshop, Boyce Thompson Institute at Cornell University, Ithaca, NY. 3/94.

In-House Boyce Thompson Institute Seminar Series, Boyce Thompson Institute at Cornell University, Ithaca, NY. 4/93, 3/96, 3/97, 3/98, 3/99.

Seminar Speaker, Dept. of Biology, Allegheny College, Meadville, PA. 10/91.

Invited Plenary Speaker, IVth International Workshop on Plant Mitochondria, Cornell University, Ithaca, NY. 9/90.

Publications:

Conklin, P.L. and C. Barth (2004) Ascorbic acid, a familiar small molecule intertwined in the response of plants to ozone, pathogens, and the onset of senescence. *Plant Cell Environ, in press.*

Barth, C., W. Moeder , D. Klessig, and **P.L. Conklin** (2004) The timing of senescence and response to pathogens is altered in the ascorbate-deficient Arabidopsis mutant *vtc1. Plant Physiol., in press.*

Kochhar, S., C.B. Watkins, **P.L. Conklin**, and S.K. Brown (2003) A quantitative and qualitative analysis of antioxidant enzymes in relation to susceptibility of apples to superficial scald. *J. Amer. Soc. Hort. Sci.*, 128(6):910-916.

Barth, Carina and **P.L. Conklin** (2003) The lower cell density of leaf parenchyma in the *Arabidopsis thaliana* mutant *lcd1-1* is associated with increased sensitivity to ozone and virulent *Pseudomonas syringae. The Plant J.*, 35: 206-218.

Conklin, P.L. (2002) Ascorbic acid: an essential micronutrient provided by plants. In: Encyclopedia of Crops and Human Health, Marcel Dekker, Inc., New York, NY.

Müller-Moulé, P., **P. Conklin**, and K.K. Niyogi (2002) Ascorbate-deficiency limits violazanthin de-epoxidase activity *in vivo. Plant Physiol*, 128:970-977.

Smirnoff, N., **P.L. Conklin**, and F.A Loewus. (2001) Biosynthesis of ascorbic acid in plants - a renaissance. *Ann Review Plant Physiol and Plant Mol Bio*, 52: 437-467.

Conklin, P.L. (2001) Recent advances in the role and biosynthesis of ascorbic acid in plants. *Plant Cell Environ*, 24: 383-394.

Lukowitz, W., T.C. Nickle, D.W. Meinke, R.L. Last, **P.L. Conklin**, and C. Somerville (2001) Arabidopsis *cyt1* mutants are deficient in a mannose-1-phosphate guanosyltransferase and point to a requirement of N-linked glycosylation for cellulose biosynthesis. *Proc Natl Acad Sci USA*, 98:2262-2267.

Conklin, P.L., S.A. Saracco, S.R. Norris, and R.L. Last (2000) Identification of vitamin C-deficient *Arabidopsis thaliana* mutants. *Genetics*, 154: 847-856.

Conklin, P.L., S.R. Norris, G.L. Wheeler, E.H. Williams, N. Smirnoff, and R.L. Last (1999) Genetic evidence for the role of GDP-mannose in plant ascorbic acid (vitamin C) biosynthesis. *Proc Natl Acad Sci USA*, 96: 4198-4203.

Conklin, P.L. (1998) Vitamin C: a new pathway for an old antioxidant. *Trends Plant Sci.*, 3:329-330.

Conklin, P.L., J.E. Pallanca, R.L. Last and N. Smirnoff. (1997) L-ascorbic acid metabolism in the ascorbate deficient Arabidopsis mutant *vtc1. Plant Physiol*, 115: 1277-1285.

Conklin, P.L., E.W. Williams and R.L. Last. (1996) Environmental stress sensitivity of an ascorbic acid-deficient Arabidopsis mutant. *Proc Nat Acad Sci USA*, 93:9970-9974.

Conklin, P.L. and R. L. Last (1995) Differential accumulation of antioxidant enzyme mRNAs in *Arabidopsis thaliana* exposed to ozone. *Plant Physiol*, 109: 203-212.

Ormrod, D.P., L.G. Landry and **P.L. Conklin** (1995) Short-term UV-B radiation and ozone exposure effects on aromatic secondary metabolite accumulation and shoot growth of flavonoid-deficient Arabidopsis mutants. *Physiol Planta*, 93: 602-610.

Conklin, P.L. and M.R. Hanson (1994) Recombination of plant mitochondrial genomes. In "Homologous recombination and Gene Silencing in plants." Ed. J. Paszkowski. Kluwer Academic Publishers, The Netherlands, pp. 61-81.

Conklin, P.L. and M.R. Hanson (1993) A truncated recombination repeat in the mitochondrial genome of a Petunia CMS line. *Curr Genet*, 23: 477-482.

Hanson, M.R., C.A. Sutton, B. Lu, **P.L. Conklin**, H. Wintz, R. Wilson and K.D. Pruitt. 1993. RNA editing in Petunia mitochondria. *In:* Plant Mitochondria. A. Brennicke and U. Kuck, eds. VCH Publishers, NY, pp. 71-81.

Sutton, C.A., **P.L. Conklin**, K.D. Pruitt, A.J. Calfee, A.G. Cobb and M.R. Hanson (1993) Editing of *rps3/rpl16* transcripts creates a premature truncation of the *rpl16* reading frame. *Curr.Genet*, 23: 472-476.

Conklin, P.L., R.K. Wilson and M.R. Hanson (1991) Multiple *trans*-splicing events are required to produce a mature *nad1* transcript in a plant mitochondrion. *Genes and Dev*, 5: 1407-1415.

Conklin, P.L. and M.R. Hanson (1991) Ribosomal protein S19 is encoded by the mitochondrial genome in *Petunia hybrida*. *Nucl Acids Res*, 19: 2701-2705.

Sutton. C.A., **P.L. Conklin**, K.D. Pruitt, and M.R. Hanson (1991) Editing of pre-mRNAs can occur before *cis*- and *trans*-splicing in *Petunia* mitochondria. *MolCell Biol*, 11: 4274-4277.

Rockwell, B.H., **P.L. Lehman** and C.M. Nebiolo (1985) Long term heat shock in maize seedlings. *Maize Genetics Coop Newsletter*, 59: 78.